



# International Consortium in Advanced Biology (CIBA):

## An Embrapa / Agropolis International initiative

*Dr. Sylvie Lewicki - Dhainaut*  
*Cirad, UMR AGAP*

## THE SCIENTIFIC COMMUNITY

A **worldwide leading scientific community** in the field of agriculture, food, biodiversity and environment

- > Research
- > Education and training
- > Scientific and technical information resources
- > Technology transfert and innovation



Science for a food secure future

## Headline

### HEADLINE



**DANIEL HORACIO REARTE, HAS TAKEN HIS FUNCTIONS AS THE FIRST COORDINATOR OF THE LABINTEX/EXTERNAL LABORATORY OF INTA WHICH HAS BEEN SET UP ALONG THE LINES OF THE BRAZILIAN EMBRAPA-LABORATORY AT AGROPOLIS INTERNATIONAL**



## COLLECTIVE ACTIONS

An association **gathering its members** since 1986

- > Promoting expertise and knowledge at international level
- > Go-between and support to scientific activities
- > Project management
- > Innovation and international

## News

Subscribe to the news RSS feed

The 2nd "Global Conference on Agricultural Research for Development" (GCARD) will take place on 29th October-1st November in Punta del Este (Uruguay).

+ About us

+ Members and partners

Financial support from





**At the heart of the scientific community of Montpellier and the “*Région Languedoc-Roussillon*”, a large range of expertise in the area of agriculture, food, environment and biodiversity**

**2300 research scientists and teachers**

**500 people on long-term assignments in 60 partner countries**

**80 research units**

- Biodiversity and Land ecosystems
- Biodiversity and Aquatic ecosystems
- Host-vector-parasite interactions and infectious diseases
- Genetic resources and integrative plant biology
- Agronomy, cultivated plants and cropping systems
- Grapevine and Wine, regional specific supply chain
- Animal production and health
- Food : nutritional and health concerns
- Economics, societies and sustainable development
  - Modelling, spatial information, biostatistics
- Water: resources and management
- Environmental technologies





## Once upon a time ...

**Before February 2002:** Some collaborative projects Embrapa / Agropolis International in advanced biology;

**February 2002:** Installing Labex-Europa in Agropolis International;

**March 2003:** Development of an Embrapa - CIRAD strategic plan in advanced biology

**November 2005:** First discussions between Embrapa - Labex and CIRAD;

**March 2006:** Visit of Maurício Lopes in Montpellier and a *Concept note* is written;

**August 2006:** Discussion with Embrapa researchers Cenargen and Jean-Christophe Glaszmann during a visit to Brasília;

# Genetic Improvement and Adaptation of Mediterranean and Tropical Plants

[The Unit](#)

## The Unit

[The unit's scientific project](#)[Staff](#)[Organization](#)[Quality procedure](#)

## Fields covered

## Scientific teams

## Platforms

## Biological resource centres

## The Unit

The AGAP very large research unit, which was launched on 1st January 2011, is a joint research unit placed under the authority of three research and higher education establishments, focusing on the genetic improvement of tropical and Mediterranean plants: CIRAD, INRA and Montpellier SupAgro. Staff from the *Institut national de recherche en informatique et en automatique* (INRIA), the *Institut français de la vigne et du vin* (IFV) and the *Conservatoire botanique national méditerranéen de Porquerolles* (CBN) also work within AGAP.

### The unit's scientific project



The unit endeavours to create the most suitable planting material for farming systems involving the main 20 tropical and Mediterranean species.

[Read more](#)

### Staff in France but also worldwide



## Document

 [Organization Agap](#)

## Contact

### Director

Jean-Christophe  
Glaszmann  
[Courriel](#)

### Assistant directors

Robert Domaingue  
Emmanuel Guiderdoni  
Sylvie Lewicki\_Dhainaut  
Patrice This  
[Courriel](#)

# Context

**State of Art: 26 research projects of scientific collaboration between Embrapa and Agropolis institutions (Cirad, IRD...)**

**Objectives: strengthen and increase the scientific partnerships between Embrapa and Agropolis institutions to enhance the portfolio of CIBA's projects**

- **2006:** discussions initiated in the frame of the Embrapa Labex / Cirad (J.C. Glaszmann and M. Lopes)
- **2007:** “Cirad / Embrapa Concept note”
- **2007:** Agropolis Fondation supports CIBA meetings (4 organized between 2007 and 2009)







WG I: Oil palm



WG VI: Citrus greening



WG II: Cacao and cupuaçu

WG V: Apple tree

WG III: Abiotic stress

WG IV: Biotic stress





# AGROPOLIS INTERNATIONAL



la Région  
Languedoc  
Roussillon

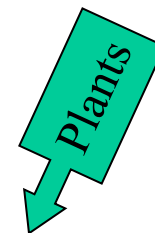


Participants of the 4th CIBA Workshop CIBA (10/2009)  
68 participants: 43 french, 18 brazilian and 7 africans  
+ CNPq + CAPES + brazilian Universities...

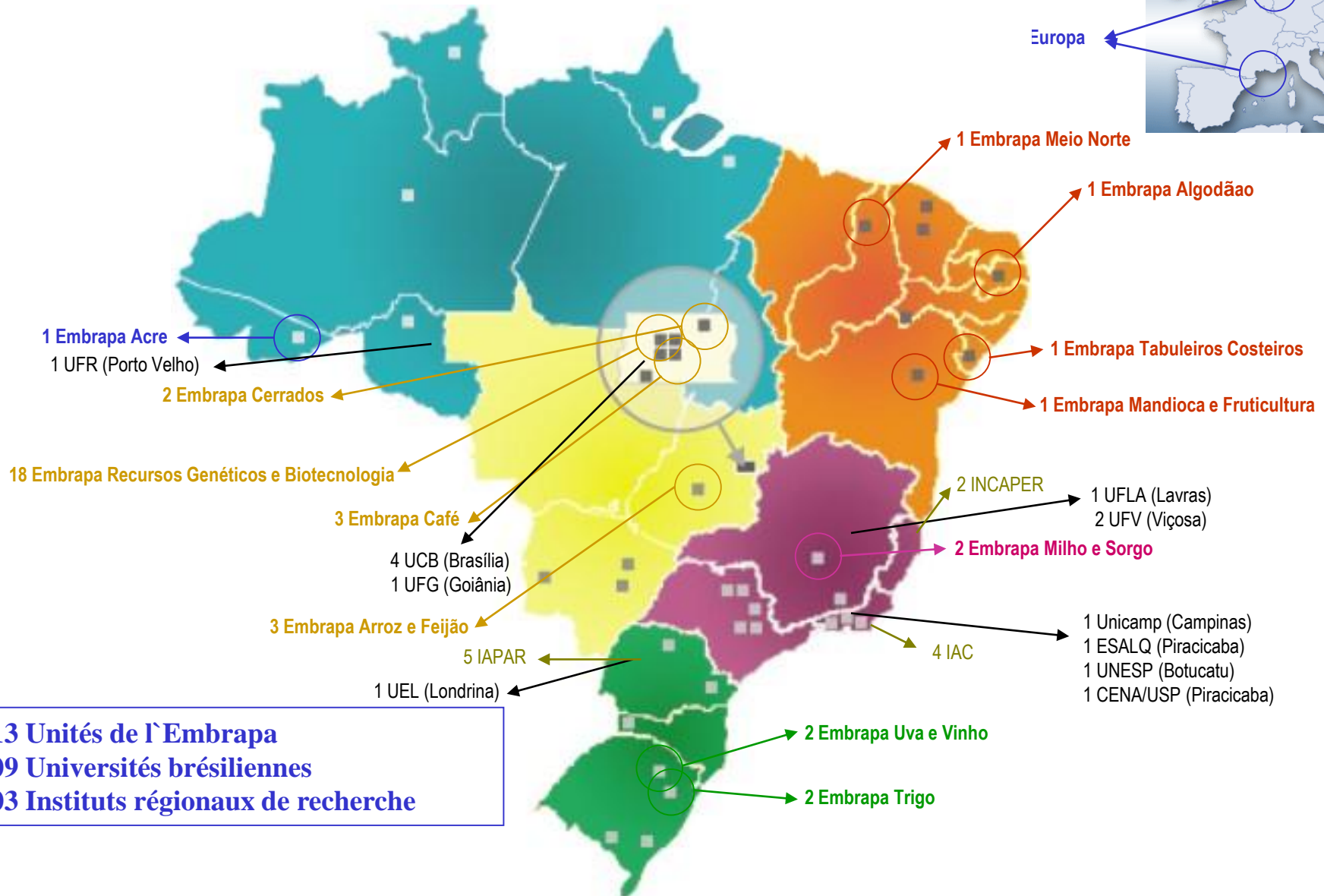


26 research projects of scientific collaboration between Embrapa and Agropolis partners (June 07) + 25 additional collaborative actions after three CIBA Workshops (June 09)

|                                      |                          | Thèmes                    |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|--------------------------------------|--------------------------|---------------------------|---------|---------|-----|------|------------|-----|-------|--------|--------|----------------|--------|--------------------------|-------|---------|----------------------------|-----------------|----------|----------------|-------|-----------|--------------|---------|---------|--------------|----------|---------------------|---------|-------|--------|-------|---------|---------|--|-----------|----------|-----------------|----------|-------------|--------|---------|--|--|
|                                      |                          | Tolérance à la Sécheresse |         |         |     |      |            |     |       |        |        | Tolérance a AI |        | Resistance aux Nématodes |       | Stress  | Resistance aux Champignons |                 |          |                |       |           | Resis. Bact. | Qualité |         | Reproduction |          | Diversité génétique |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
| Outils                               |                          | Culture                   | Caféier | Arachis | Riz | Maïs | Eucalyptus | Pin | Vigne | Sorgho | Prunus |                | Sorgho | Caféier                  | Coton | Arachis | Meloidogyne                | Palmier a huile | Bananier | Micosphaerella | Coton | Ramularia | Riz          | Blé     | Arachis | Pommier      | Venturia | Cacaoyer            | Cupuaçu | Vigne | Citrus | Vigne | Pommier | Caféier |  | Bracharia | Cocotier | Palmier à huile | Greening | Phytoplasme | Manioc | Acarien |  |  |
| 1. Développement de Marqueurs        |                          |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Caracterization de pops  |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Cartographie génétique   |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
| 2. Développement de Bases de Données |                          |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Génomique strutureale    |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Génomique comparative    |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Génomique fonctionnelle  |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Bioinformatique          |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Génotypage               |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Phénotypage              |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
| 3. Validation de Gènes               |                          |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Transformation génétique |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Arrays d'ADN             |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | RNAi                     |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | RT-qPCR                  |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Clonage de GC            |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |
|                                      | Cartographie de GC       |                           |         |         |     |      |            |     |       |        |        |                |        |                          |       |         |                            |                 |          |                |       |           |              |         |         |              |          |                     |         |       |        |       |         |         |  |           |          |                 |          |             |        |         |  |  |

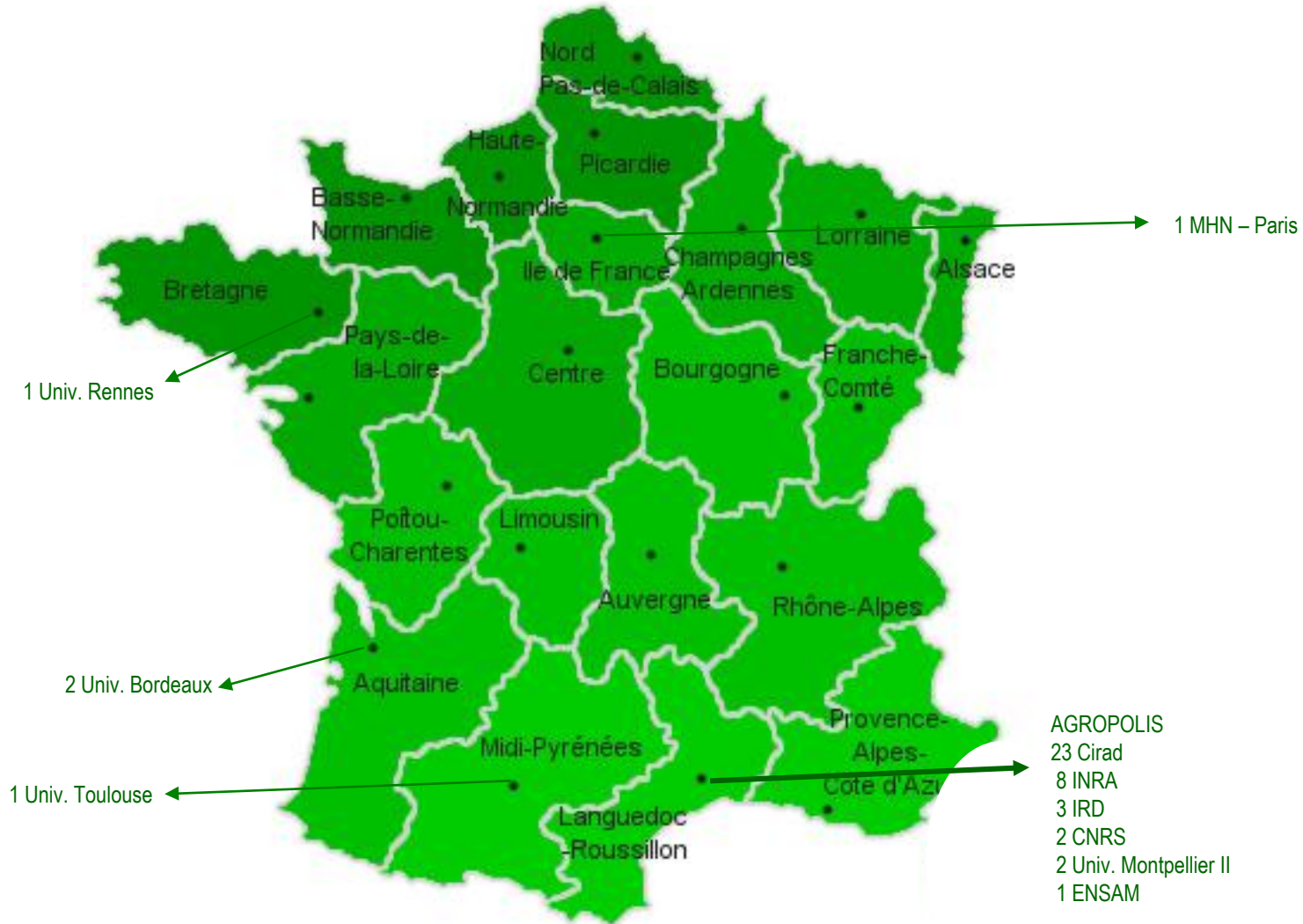


# Bilan des 26 projets de collaboration





# Bilan des 26 projets de collaboration



# Bilan des 26 projets de collaboration

## EUA

2 USDA-ARS  
2 Univ. Cornell  
1 Univ. Purdue  
1 UC Davis

## EUROPE

2 Univ. Wageningen (Hollande)  
1 Univ. Utrech (Hollande)  
1 John Innes Inst. (Angleterre)  
1 Univ. Aarhus (Danemark)

## Mexique

1 CICY  
1 CIMMYT

## Costa Rica

1 CATIE

## Argentine

1 IBONE

## ÁFRIQUE

1 CERAAS (Sénégal)  
1 UR2PI (Congo)  
1 INRA (Niger)

Inde  
1 ICRIAT

## Philippines

1 IRRI

## Australie

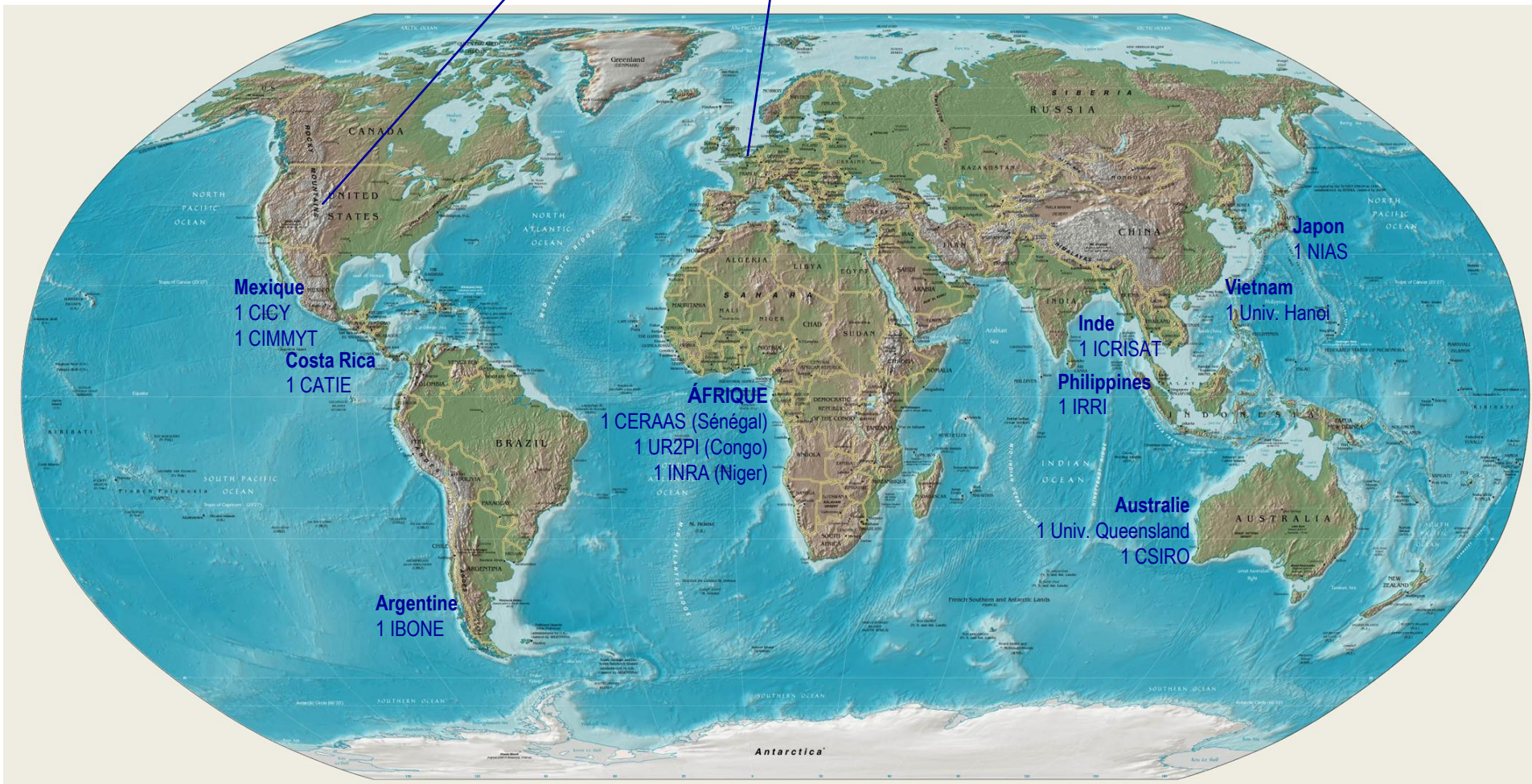
1 Univ. Queensland  
1 CSIRO

## Japon

1 NIAS

## Vietnam

1 Univ. Hanoi





- Agreements signed between Embrapa (in the name of Brazilian SNRA) and Agropolis (in the name of french partners)
- 2007: letter of intention (S. Crestana-Embrapa / G. Matheron-Cirad)
- 2008: final signature (S. Crestana-Embrapa / H. Carsalade-Agropolis)

## Embrapa e CIRAD instalam consórcio de US\$ 4,6 milhões

Fernando Bizerra/BG Press



O diretor-presidente da Empresa Brasileira de Pesquisa Agropecu ria (Embrapa), S lvio Crestana, e o diretor-geral do Centro Franc s de Coopera  o Internacional em Pesquisa Agropecu ria para o Desenvolvimento (CIRAD),

G rard Matheron, instalaram na tarde desta quarta-feira (26 de setembro), em Bras lia, o Cons rcio Internacional de Biologia Avan ada (CIBA), que movimentar  US\$ 4,6 milh es em 26 estudos direcionados principalmente aos temas meio ambiente e mudan as clim ticas.

Embrapa C d.  
10200.08/0119-7

### Agreement to form an International Consortium on Advanced Biology for Plant Breeding and Development (CIBA).

#### Between

EMBRAPA, as the coordinator of the National Agricultural Research System (SNPA), in Brazil, and

Agropolis International, as the association of the French research and training institutions located in Montpellier and in the Languedoc-Roussillon Region;

#### Background

Considering the Agreement of Scientific and Technological Cooperation signed in 16/01/1967 and the Framework Agreement of Cooperation, signed in 28/05/1996, between The Federal Republic of Brazil and the Government of the French Republic;

Considering the Contract of Technical Cooperation between the Brazilian Agricultural Research Corporation (Embrapa), and Agropolis International to implement the Embrapa Labex-Europe project; signed in 13/02/2006,

#### Article 1 – Object

1.1 The signatory organizations of this agreement, from here-on identified as the “Partners”, have defined the rules and mechanisms to create and operate the International Consortium on Advanced Biology for Plant Breeding and Development of tropical, sub-tropical and Mediterranean species, from here-on identified as CIBA.

#### Article 2 – Legal status and location

2.1 CIBA has no legal status distinct from the existing legal status of the Partners. Its operations will be guided by this agreement.

2.2 CIBA will have headquarters both at Embrapa Headquarters, Department of Research and Development (Embrapa Sede / DPD – 2o. andar, PgEB - Parque Estac o Biol gica, 70770-901 Bras lia D.F., Brazil) and at Agropolis International (Agropolis International, Av. Agropolis, 34394 Montpellier Cedex 5, France).

#### Article 3 – Objectives, outputs, thematic areas and geographic areas of implementation.

3.1 The general objective of CIBA is to develop and sustain an efficient strategy for international cooperation in research and capacity strengthening in the field of advanced biology applied to breeding of tropical, sub-tropical and Mediterranean plants. Putting together the resources, capacities, knowledge and know-how needed to study and harness the diversity of plant genetic resource and to identify essential genes and agronomic traits for application in breeding programs aiming at generating significant positive impacts in agriculture and livelihoods and to promote the sustainable development in Tropical, Sub-Tropical and Mediterranean areas, the

# Objectives

- to develop and sustain an efficient strategy for international cooperation in research and capacity building in the field of advanced biology applied to breeding of Tropical, Sub-Tropical and Mediterranean plants,
- to generate significant positive impacts in agriculture
- to promote the sustainable development in Tropical, Sub-Tropical and Mediterranean areas, putting together the resources, capacities, knowledge and know-how needed to study and harness the diversity of plant genetic resources,
- to identify essential genes and agronomic traits for application in breeding programs.





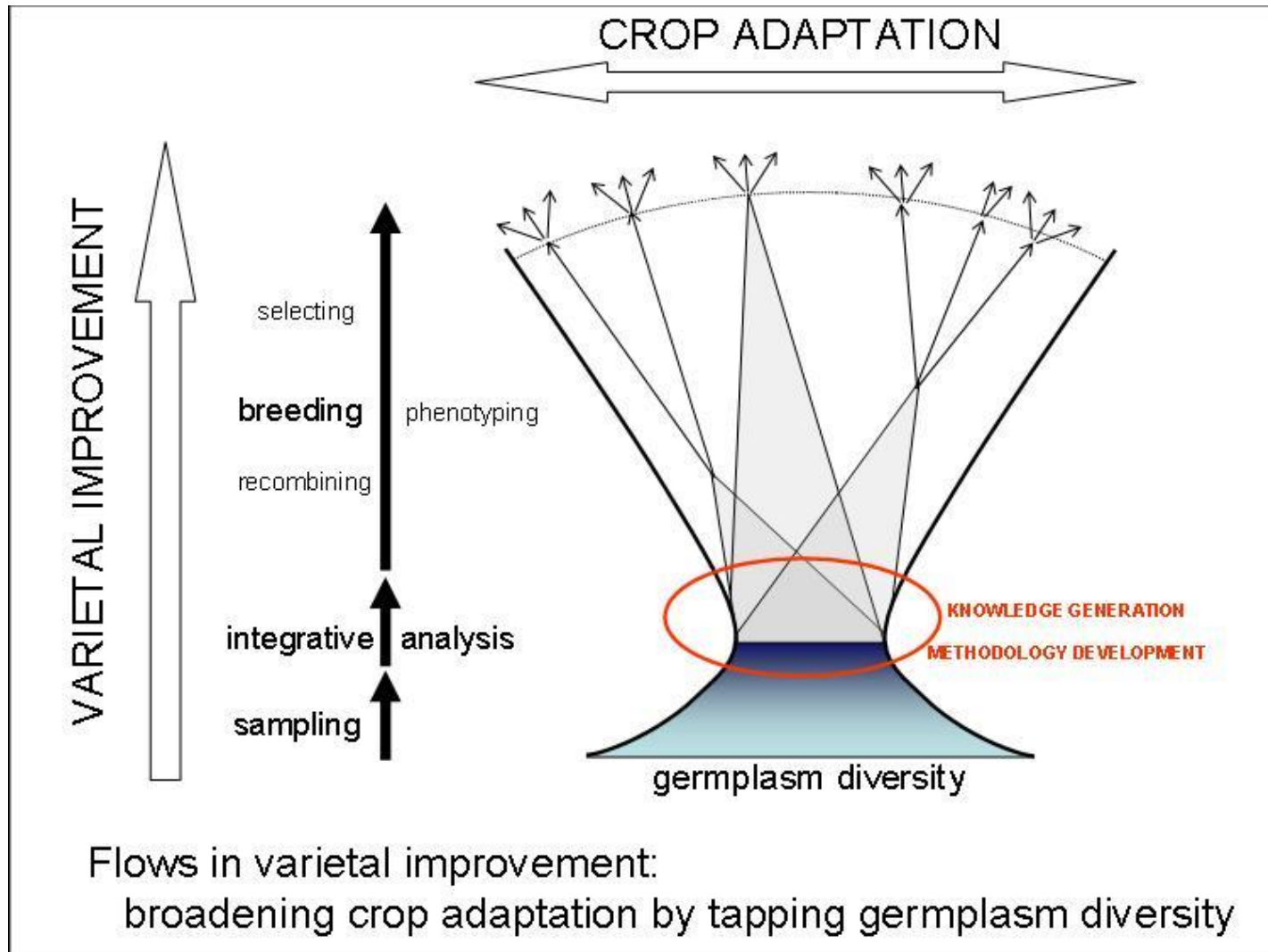
# CIBA keywords:

- International scientific collaborations
- Share capacities, funds, knowledges and expertise
- Plant genetic resources and diversity
- Essential genes and characteristics
- Programs of genetic breeding in tropical and Mediterranean agricultures

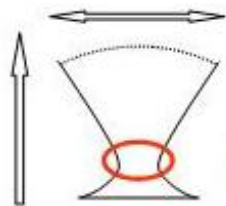
# CIBA benefits:

- **Share common objectives**, infrastructure and capacities
- Critical mass to generate knowlegdes and technical innovations
- International visibility
- Essential genes and characteristics
- Case of study (Success story”) for other strategical aereas and to develop collaboration with new countries

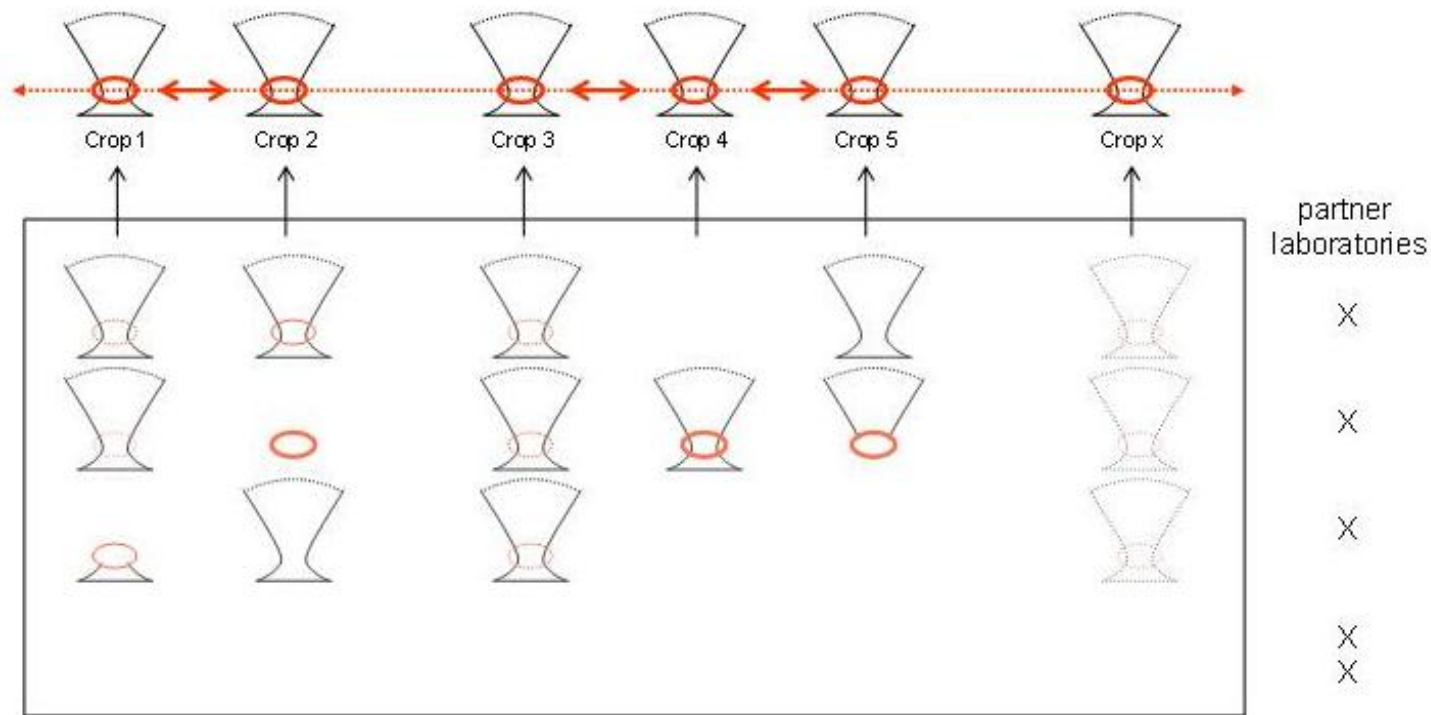
# What do we need to create new cultivars?



# Working in networks



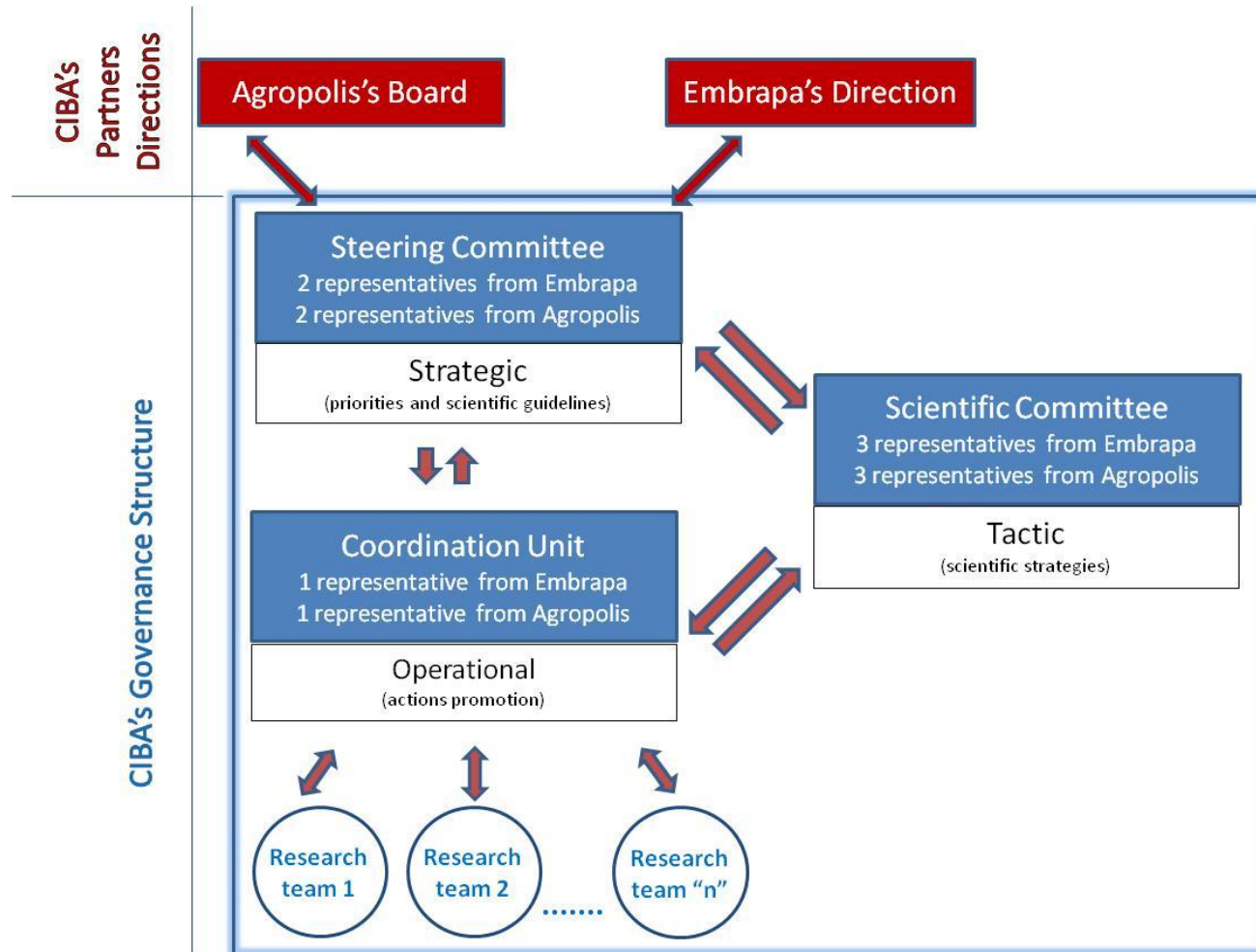
**KNOWLEDGE GENERATION** in an **EVOLUTIONARY PERSPECTIVE ACROSS CROPS**  
**METHODOLOGY DEVELOPMENT** in a **COLLABORATIVE SET-UP ACROSS FACILITIES**



A rationale for coordination between efforts in modern varietal improvement



# CIBA management





Mauro Carneiro (in discussion)



Pedro Arcuri  
(Coordenador Embrapa Labex-Europa)

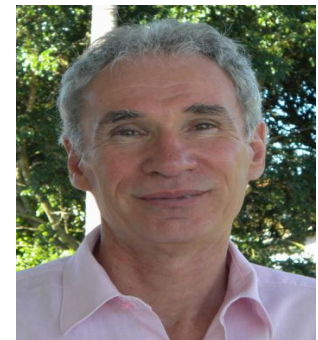
## Steering Committee

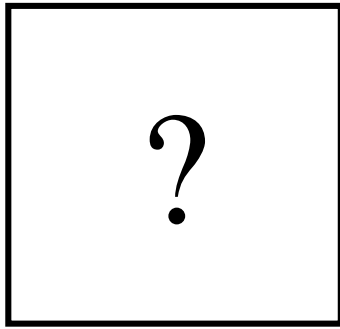
2 representatives from Embrapa  
2 representatives from Agropolis

Bernard HUBERT,  
(Agropolis President)

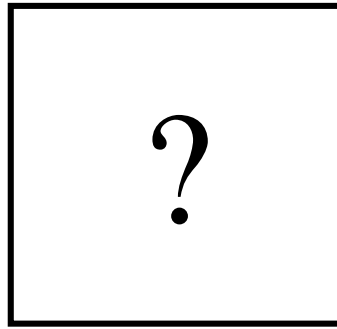


Bernard Mallet  
(Director Cirad/INRA in Brasil)

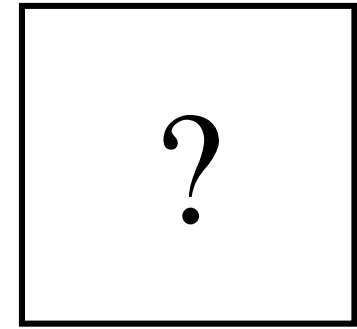




Mauro Carneiro  
(Embrapa Cenargen)



(in discussion)  
➤ Mauricio Lopez (DPD)  
➤ Luciano Nass (SRI)



(in discussion)  
➤ Fatima Grossi de As  
(Cenargen)

## Scientific Committee

3 representatives from Embrapa  
3 representatives from Agropolis

Jean –Christophe Glaszmann  
(Director UMR AGAP Cirad)



Philippe Guerche  
(Director INRA)



Jean Louis Pham  
(IRD Agropolis Fondation)





Ana Cristina Miranda Brasileiro  
(Embrapa Cenargen)



Sylvie Lewicki- Dhainaut  
(Cirad, UMR AGAP)



## Coordination Unit

1 representative from Embrapa  
1 representative from Agropolis

Diana Fernandez  
(IRD UMR RPB)



Pierre Marraccini  
(Cirad UMR AGAP)  
(Animator & Coordinator Cirad)

Educação  
Ministério da Educação

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Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

pesquisar...

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## Programa Capes/Fundação Agrópolis

Sexta, 23 de Julho de 2010 10:04

O Programa CAPES/Fundação Agrópolis é resultado de um esforço conjunto que objetiva contribuir para a difusão de conhecimentos e a capacitação científica entre Brasil e França. A iniciativa prevê o apoio a projetos conjuntos de pesquisa focados em questões relacionadas a temáticas agrícolas e de desenvolvimento sustentável, os quais poderão ainda contar com o envolvimento de grupos de pesquisa de países africanos. A Fundação Agrópolis tem a missão de incentivar a pesquisa de alto nível, a educação de superior no seu país e estreitar os laços de cooperação científica internacional de grupos franceses, atuando nas ciências agrícolas e na pesquisa em desenvolvimento sustentável.

A iniciativa firmada em parceria com a CAPES prevê o apoio a projetos conjuntos de pesquisa, que envolvem ainda a potencial participação de grupos africanos parceiros, e à organização ou participação seminários, workshops e outras atividades binacionais, que funcionará como catalisador para a interação transnacional dos pesquisadores. Serão selecionados projetos nas seguintes temáticas: genética e genômica, melhoramento de plantas, ecofisiologia; doenças e pragas, proteção das culturas integradas, ecologia

**CAPES/Agropolis  
fondation  
launched Joint call  
for proposals  
since 2010**

**agropolis fondation**  
Supporting agricultural research  
for sustainable development

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## Media room

## Events

### Agropolis Fondation and CAPES to support 5 new projects

**Five projects involving French, Brazilian and African scientists were selected under the 2010 Agropolis Fondation-CAPES (Brazilian Federal Agency for Support and Evaluation of Graduate Education) Joint Call for Proposals (CfP).**

This Call was carried out within the framework for common action in promoting scientific cooperation between France and Brazil as outlined in the Memorandum of Agreement (MOA) signed by the two institutions on 01 July 2010. This Agreement also provides for the possible involvement of African countries in a joint effort to contribute to knowledge sharing and scientific capacity building.

Below are the five projects selected under this Call:

1. Identification of nematode (*Meloidogyne* spp.) effectors of pathogenicity in rice (*Oryza sativa*)  
*Team: Diana Fernandez (RPB-IRD, France), Maria Fatima Grossi de Sa (Universidade Catolica de Brasilia, Brazil), and Hughes Baimé (International Institute of Tropical Agriculture, Benin)*
2. InfraRed Spectrometry as a tool to model inorganic and organic phosphorus availability in tropical soils under conservation systems (PAIRS)  
*Team: Thierry Becquer (UMR Eco&Sol, IRD-INRA-Montpellier SupAgro, France), Maria de Fatima Guimarães (State University of Londrina, Brazil) and Tantely Razafim Belo (University of Antananarivo, Madagascar)*
3. Organization of a joint French-Brazilian-African training course for the construction of a sentinel network for Greening disease outbreak detection in peri-Mediterranean countries  
*Team: Frédéric Gatineau (JMCGA-CIRAD, France), Alexandre Morais do Amaral (EMBRAPA Labex-Europe) and*

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## AGROPOLIS FONDATION – CAPES 2010 JOINT CALL FOR PROPOSALS

### LIST OF SELECTED PROJECTS

rice

| Proj ID  | Short name  | Project's Full name  | Proponents  | AF Funding Awarded (€) | CAPES Funding (€)                             |
|----------|---|--|---|------------------------|---|
| 1002-003 | Nema-tode effectors in rice-Meloidogyne interactions  | Identification of nematode (Meloidogyne spp.) effectors of pathogenicity in rice (Oryza sativa)  | -Diana Fernandez (France)<br>-Maria Fatima Grossi de Sa (Brazil)<br>-Hughes Baimey (Benin)              | 20 000                 | To be communicated by CAPES to Brazilian team |
| 1002-006 | PAIRS: Phosphorus Assessment by InfraRed Spectrometry | InfraRed Spectrometry as a tool to model inorganic and organic phosphorus availability in tropical soils under conservation systems  | -Thierry Becquer (France)<br>-Maria de Fatima Guimarães (Brazil)<br>-Tantely Razafim Belo (Madagascar)  | 19 760                 | To be communicated by CAPES to Brazilian team |
| 1002-008 |   | Organization of a joint French-Brazilian-African training course for the construction of a sentinel network for Greening disease outbreak detection in peri-Mediterranean countries. | -Frédéric Gatineau (France)<br>-Alexandre Morais do Amaral (Brazil)<br>-Joseph Tamesse Lebel (Cameroun) | 18 980                 | To be communicated by CAPES to Brazilian team |



**CIBA**

coffee

|          |                          |   |  |        |   |
|----------|--------------------------|---|--|--------|---|
| 1002-009 | Coffea retro-transposons | Role of active retrotransposons (RT) In Coffea canephora and C. arabica Genome Evolution  | -Alexandre de Kochko (France)<br>-Claudia Carareto (Brazil)<br>-Pascal Musoli (Uganda) | 20 000 | To be communicated by CAPES to Brazilian team |
| 1002-012 | PHE-GECO                 | PHEnotyping, GENotyping and analyzing genetic diversity and structure of a collection of Coffea arabica from Ethiopia, in relation with quality and drought tolerance | -Thierry Leroy (France)<br>- Luiz Filipe (Brazil)                                      | 20 000 | To be communicated by CAPES to Brazilian team |



**CIBA**

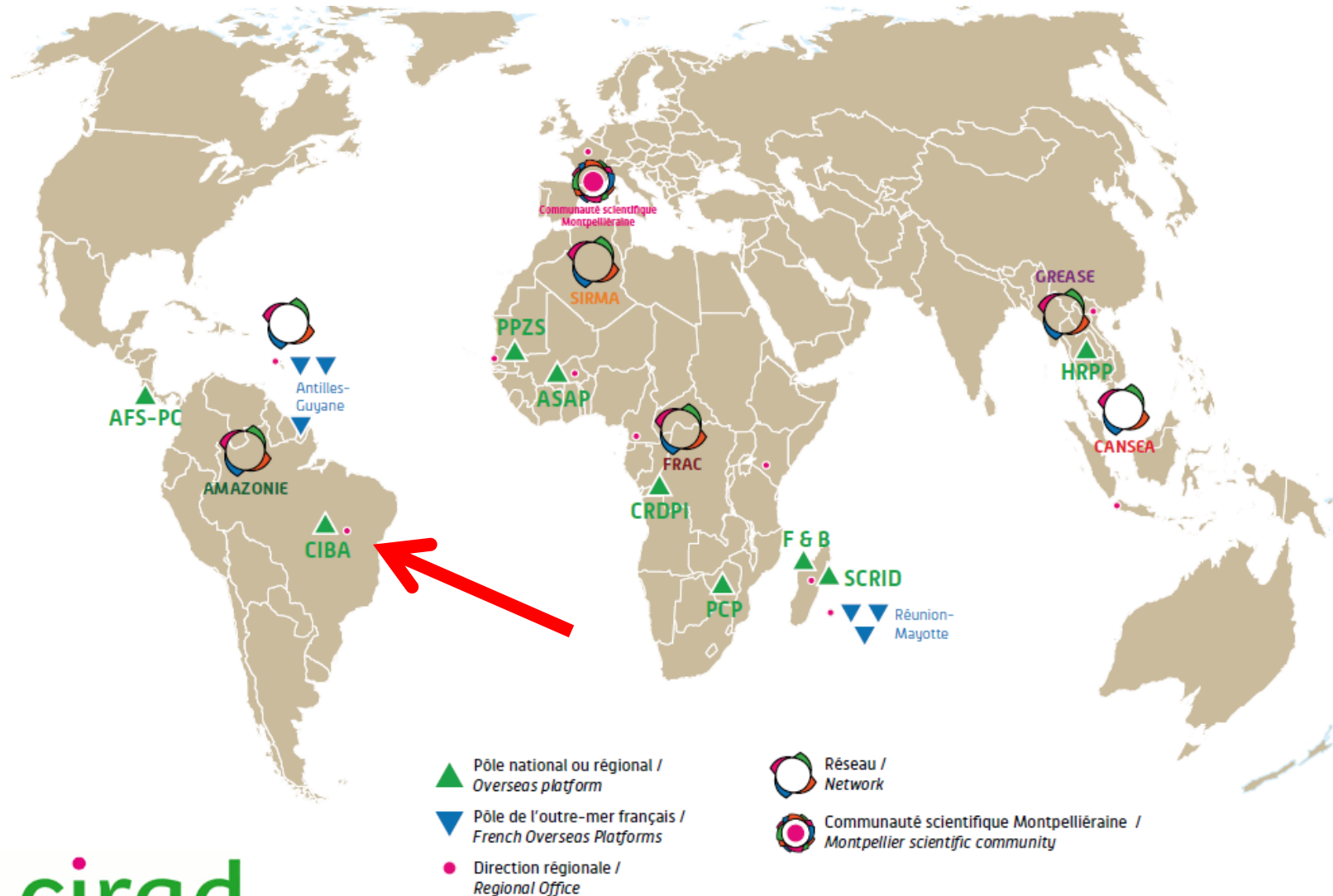


**CIBA**



# The CIBA:

## One of the Cirad's Platforms in Partnership for research and training



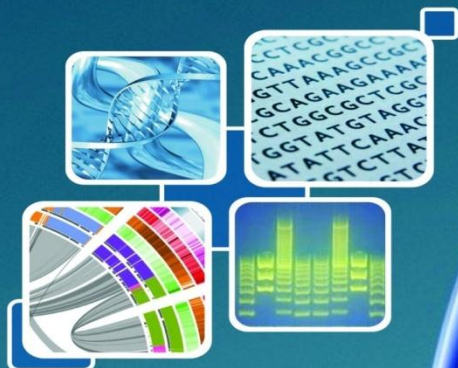


# CIBA : scientific animation 2010 (supported by Cirad and partners):

O Consórcio Internacional em Biologia Avançada - CIBA  
apresenta o:

## ENCONTRO FRANÇA-BRASIL DE

# BIOINFORMÁTICA



**Data**

08 a 12 de novembro de 2010

**Curso**

100 vagas para aulas teóricas  
40 vagas para aulas práticas

### REALIZAÇÃO:



Universidade Estadual de Santa Cruz - UESC  
Departamento de Ciências Biológicas - DCB  
Departamento de Ciências Exatas e Tecnológicas - DCET

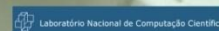
### Inscrições:

e-mail: [eventociba@gmail.com](mailto:eventociba@gmail.com)

Tel: (73) 3680-5183

site: <http://nbcgib.uesc.br/nbcgib/efbbapresentacao>

### APOIO:





## **CIBA : scientific animation in 2011** **(supported by Cirad and partners):**

- ***Meeting « Functional-Structural Plant Models »***  
(Cirad-Embrapa CNPTIA)
- ***Preparation Project ANR Amazonie***  
(Cirad-Embrapa CPAFAC)
- ***Meeting « Resistance to fungus –Theobroma »***  
(Cirad-UESC-CEPLAC-Embrapa CEPATU)
- ***Meeting « Drought stress – Citrus »***  
(Cirad-Embrapa CNPMF)
- ***Research School in Bioinformatics 2011***  
(Cirad-Embrapa CNPTIA-IRD)



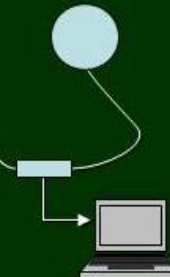
The International Consortium in Advanced Biology (CIBA)

presents

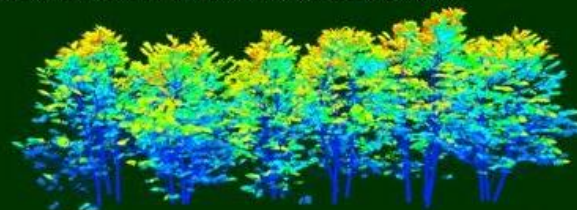
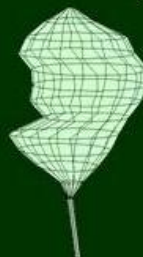
## First French-Brazilian Meeting on Functional-Structural Plant Modeling

Embrapa – Informática Agropecuária  
Campinas 24-27 October 2011

- ✓ Plant architecture
- ✓ Measurement and analysis
- ✓ Plants and environment
- ✓ Plant growth modeling
- ✓ Tools and platforms



This meeting aims to give an overview of the Functional-Structural plant modeling approach for a mixed community of agronomists, plant physiologists, modelers and computer scientists with various illustrations on annual and perennial plants.



[www.cnptia.embrapa.br](http://www.cnptia.embrapa.br)  
[sites.google.com/site/fspm1meeting/](http://sites.google.com/site/fspm1meeting/)

Supported by:



## First International Workshop on Biotechnology Applied to Tropical Woody Plants

### Instituições organizadoras



### Patrocinadores



## APRESENTAÇÃO DO WORKSHOP

O evento será desenvolvido na forma de workshop permitindo uma discussão profunda através da apresentação de palestras e espaço para troca de idéias e experiências entre os pesquisadores.

Ao longo de quatro dias, 20 pesquisadores brasileiros e franceses apresentarão o que tem sido realizado no âmbito científico sob o aspecto da genômica, transformação genética e micropropagação em importantes lenhosas tropicais (como café, citros, cacau, eucalipto, seringueira por exemplo), sendo incentivado a transferência de tecnologia, a possibilidade de intercâmbio e a realização de novos projetos de pesquisa entre as instituições envolvidas.

Este workshop será destinado à estudantes de graduação, pós-graduação e professores de diferentes Universidades brasileiras e também para pesquisadores e profissionais que trabalham com espécies tropicais lenhosas.

Muito obrigado pela atenção !  
Merci de votre attention !  
Thank you for your attention

Brazil



France

